

$a_2(1700)$

$I^G(J^{PC}) = 1^-(2^{++})$

OMMITTED FROM SUMMARY TABLE

$a_2(1700)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
1732 ± 16 OUR AVERAGE		Error includes scale factor of 1.9. See the ideogram below.			
$1737 \pm 5 \pm 7$		ABE	04	BELL	$10.6 e^+ e^- \rightarrow e^+ e^- K^+ K^-$
1698 ± 44		¹ AMSLER	02	CBAR	$0.9 \bar{p}p \rightarrow \pi^0 \eta\eta$
1660 ± 40		ABELE	99B	CBAR	$1.94 \bar{p}p \rightarrow \pi^0 \eta\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1722 \pm 9 \pm 15$	18k	² SCHEGELSKY	06	RVUE	$\gamma\gamma \rightarrow \pi^+ \pi^- \pi^0$
1702 ± 7	80k	³ UMAN	06	E835	$5.2 \bar{p}p \rightarrow \eta\eta\pi^0$
$1721 \pm 13 \pm 44$	145k	LU	05	B852	$18 \pi^- p \rightarrow \omega\pi^- \pi^0 p$
~ 1775		⁴ GRYGOREV	99	SPEC	$40 \pi^- p \rightarrow K_S^0 K_S^0 n$
$1752 \pm 21 \pm 4$		ACCIARRI	97T	L3	$\gamma\gamma \rightarrow \pi^+ \pi^- \pi^0$

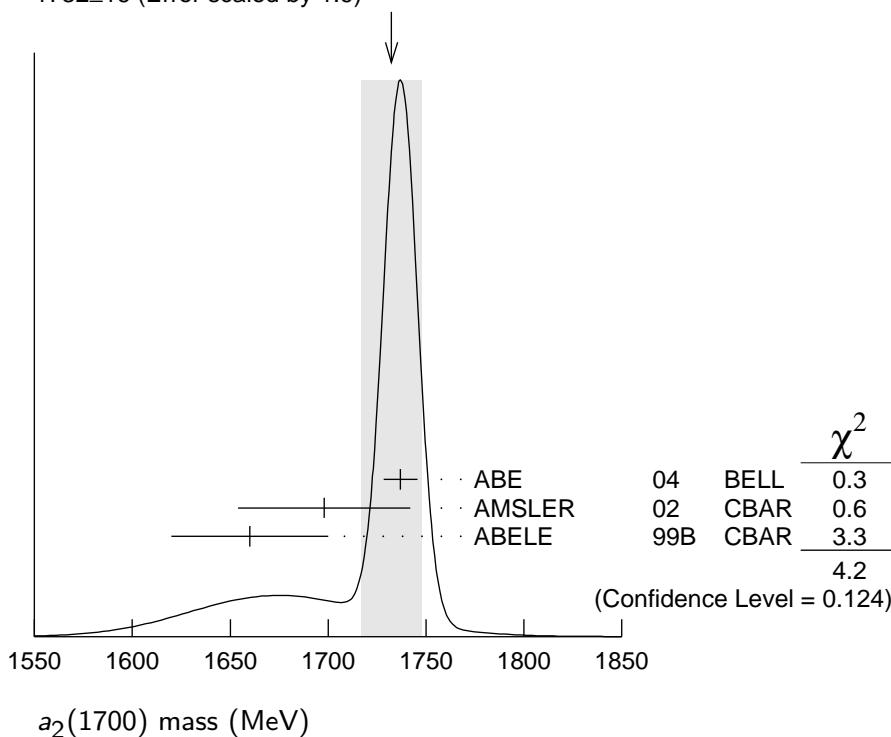
¹ T-matrix pole.

² From analysis of L3 data at 183–209 GeV.

³ Statistical error only.

⁴ Possibly two $J^P = 2^+$ resonances with isospins 0 and 1.

WEIGHTED AVERAGE
 1732 ± 16 (Error scaled by 1.9)



$a_2(1700)$ WIDTH

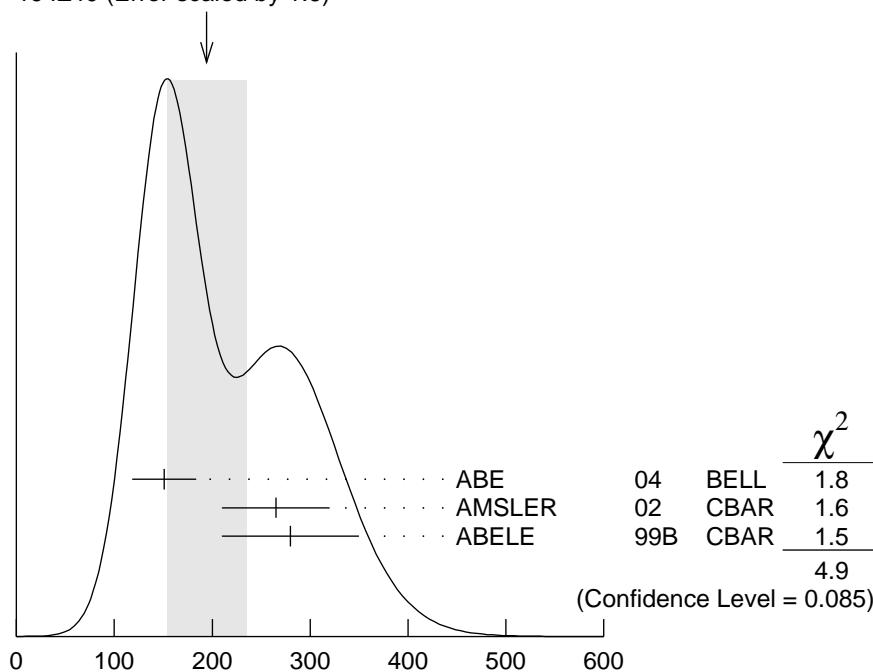
VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
194± 40 OUR AVERAGE	Error includes scale factor of 1.6. See the ideogram below.				
151± 22±24	ABE	04	BELL	10.6	$e^+e^- \rightarrow e^+e^- K^+K^-$
265± 55	5 AMSLER	02	CBAR	0.9	$\bar{p}p \rightarrow \pi^0\eta\eta$
280± 70	ABELE	99B	CBAR	1.94	$\bar{p}p \rightarrow \pi^0\eta\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
336± 20±20	18k	6 SCHEGELSKY	06	RVUE 0	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$
417± 19	80k	7 UMAN	06	E835	5.2 $\bar{p}p \rightarrow \eta\eta\pi^0$
279± 49±66	145k	LU	05	B852	18 $\pi^- p \rightarrow \omega\pi^-\pi^0 p$
150±110±34		ACCIARRI	97T	L3	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$

⁵ T-matrix pole.

⁶ From analysis of L3 data at 183–209 GeV.

⁷ Statistical error only.

WEIGHTED AVERAGE
194±40 (Error scaled by 1.6)



$a_2(1700)$ width

$a_2(1700)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \eta\pi$	seen
$\Gamma_2 \quad \gamma\gamma$	
$\Gamma_3 \quad \rho\pi$	

Γ_4	$f_2(1270)\pi$			
Γ_5	$K\bar{K}$		seen	
Γ_6	$\omega\pi^-\pi^0$		seen	
Γ_7	$\omega\rho$		seen	

$a_2(1700)$ PARTIAL WIDTHS

$\Gamma(\eta\pi)$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_1
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$					
9.5 ± 2.0	870	⁸ SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$	

$\Gamma(\gamma\gamma)$

VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_2
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$					
0.30 ± 0.05	870	⁸ SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$	

$\Gamma(K\bar{K})$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_5
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$					
5.0 ± 3.0	870	⁸ SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$	

⁸ From analysis of L3 data at 91 and 183–209 GeV, using $a_2(1700)$ mass of 1730 MeV and width of 340 MeV, and SU(3) relations.

$a_2(1700) \Gamma(i) \Gamma(\gamma\gamma)/\Gamma(\text{total})$

$[\Gamma(\rho\pi) + \Gamma(f_2(1270)\pi)] \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$		$(\Gamma_3 + \Gamma_4)\Gamma_2/\Gamma$		
VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT
$0.29 \pm 0.04 \pm 0.02$		ACCIARRI 97T	L3	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$				
$0.37^{+0.12}_{-0.08} \pm 0.10$	18k	⁹ SCHEGELSKY 06	RVUE	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$

⁹ From analysis of L3 data at 183–209 GeV.

$\Gamma(K\bar{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$

VALUE (eV)	DOCUMENT ID	TECN	COMMENT	$\Gamma_5\Gamma_2/\Gamma$
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$				
$20.6 \pm 4.2 \pm 4.6$	¹⁰ ABE 04	BELL	$10.6 e^+e^- \rightarrow e^+e^-K^+K^-$	
10 Assuming spin 2.				

$a_2(1700)$ BRANCHING RATIOS

$\Gamma(\rho\pi)/\Gamma(f_2(1270)\pi)$	Γ_3/Γ_4			
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$				
$3.4 \pm 0.4 \pm 0.1$	18k	¹¹ SCHEGELSKY 06	RVUE	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$

¹¹ From analysis of L3 data at 183–209 GeV.

$a_2(1700)$ REFERENCES

SCHEGELSKY	06	EPJ A27 199	V.A. Schegelsky <i>et al.</i>
SCHEGELSKY	06A	EPJ A27 207	V.A. Schegelsky <i>et al.</i>
UMAN	06	PR D73 052009	I. Uman <i>et al.</i>
LU	05	PRL 94 032002	M. Lu <i>et al.</i>
ABE	04	EPJ C32 323	K. Abe <i>et al.</i>
AMSLER	02	EPJ C23 29	C. Amsler <i>et al.</i>
ABELE	99B	EPJ C8 67	A. Abele <i>et al.</i>
GRYGOREV	99	PAN 62 470 Translated from YAF 62 513.	V.K. Grygorev <i>et al.</i>
ACCIARRI	97T	PL B413 147	M. Acciarri <i>et al.</i>

(FNAL E835)
(BNL E852 Collab.)
(BELLE Collab.)

(Crystal Barrel Collab.)

(L3 Collab.)

OTHER RELATED PAPERS

BAKER	03	PL B563 140	C.A. Baker <i>et al.</i>
BARBERIS	00H	PL B488 225	D. Barberis <i>et al.</i>

(WA 102 Collab.)
